

WHAT IS CLAIMED IS:

1. A fuel cell comprising a pair of metallic separators at least one of which has corrugated passages; an intermediate held between the passage planes in the separator; and a gasket; wherein the intermediate is elastic and/or compressive, and electroconductive; and the gasket is provided in a portion other than the passage planes.
2. A fuel cell having a stack structure of several unit cells, each comprising electrolyte membrane electrodes, gas diffusion layer provided on each side of the electrode and metallic separator having corrugated passages and coming into contact with each gas diffusion layer, and a separator for cooling provided in the stack structure, wherein the separator for cooling is provided with an elastic and/or compressive and electroconductive intermediate sheet held between the passage planes, and a gasket in the portion other than the passage plane.
3. The fuel cell according to Claim 2, wherein part of said intermediate sheet has openings in the portion not coming into contact with said separator for cooling.
4. The fuel cell according to Claim 2, wherein said intermediate sheet is of at least one material selected from the group consisting of carbon paper, carbon cloth, graphite sheet, expanded metal, electroconductive rubber and electroconductive resin.

5. The fuel cell according to Claim 2, wherein said separator for cooling is coated, at least on the plane coming into contact with said intermediate sheet, with an electroconductive material capable of preventing growth of an oxide film on, or corrosion of, said separator for cooling.

6. A fuel cell having a stack structure of several unit cells, each comprising electrolyte membrane electrodes, gas diffusion layer provided on each side of the electrode and metallic separator having corrugated passages and coming into contact with each gas diffusion layer, and a separator for cooling provided in the stack structure, wherein the separator for cooling is coated with a metal selected from the group consisting of niobium, tantalum, tungsten, titanium, titanium-based alloy, aluminum, aluminum-based alloy, stainless steel and nickel alloy for the outermost layer and also coated, at least on the surface passing electric current, with one selected from the group consisting of a carbon, carbon/resin mixture, plated and electroconductive ceramic layer, and an elastic and/or compressive and electroconductive intermediate sheet is held between the passage planes of the separator for cooling and adjacent one.

7. A separator for fuel cell cooling comprising a pair of metallic separators for cooling which have corrugated passages, wherein an elastic and/or compressive and electroconductive intermediate sheet is

held between the passage planes, and a gasket is provided in the portion other than the passage plane.

8. The separator for fuel cell cooling according to Claim 7, wherein part of said intermediate sheet has openings in the portion not coming into contact with said separator for cooling.

9. The separator for fuel cell cooling according to Claim 7, wherein said intermediate sheet is of at least one material selected from the group consisting of carbon paper, carbon cloth, graphite sheet, expanded metal, electroconductive rubber and electroconductive resin.

10. The separator for fuel cell cooling according to Claim 7 which is coated, at least on the plane coming into contact with said intermediate sheet, with an electroconductive material capable of preventing growth of an oxide film on, or corrosion of, said separator for cooling.

11. A separator for fuel cell cooling comprising a pair of metallic separators for cooling at least one of which has corrugated passages, wherein an elastic and/or compressive and electroconductive intermediate sheet is held between the passage planes of the separator for cooling and adjacent one, and the separator for cooling is coated with a metal selected from the group consisting of niobium, tantalum, tungsten, titanium, titanium-based alloy, aluminum, aluminum-based alloy, stainless steel and nickel alloy

for the outermost layer and also coated, at least on the surface passing electric current, with one selected from the group consisting of a carbon, carbon/resin mixture, plated and electroconductive ceramic layer.